delighted to know will be for the future filled by Dr. Sharp.

The editor's preface opens with a few feeling words relating to the death of the late editor, E. C. Rye; he is also obliged to record a broken promise, which thus recalls to mind an almost similar one recorded in vol. i., but with this difference—that for vol. xxi. though at the last hour a Recorder was found to supply the not forthcoming record, and has done so in a manner that, novice though he may be, shows the master's hand, for Mr. P. L. Sclater's record of the Mammalia forms not alone a scientific record, but its arrangement and style is so good and the summary of work on the general subject is so excellent as to mark it out for special notice.

Mr. Bowdler Sharpe, owing to his visit to Simla, left the record of the birds to Mr. A. H. Evans.

Mr. Gibson-Carmichael, in his record of Arachnids for 1883 and 1884, apologises for not recording a list of the new species described in the papers quoted owing "to his not feeling competent to judge of the value of new species." Here we may be allowed to utter a word of caution. A record should not of necessity be a criticism, and we would have preferred to have seen a statement of all the new species and their habitats than merely the titles of papers. For a zoological inquirer the habitat is often an assistance, and we notice that the same Recorder has not in the case of the Myriapoda been as particular in quoting these as we could have wished. Prof. Haddon has recorded the Infusoria. Certain very desirable changes in the sequence of some of the groups have been made by Prof. Jeffrey Bell, who acknowledges the receipt of money grants in aid of the publication from the Government Grant Committee of the Royal Society and the British Association, and whom we wish every success in his arduous and difficult task as editor of our British Record of Zoological Science.

Elemente der Lithologie. Von Dr. Ernst Kalkowsky. (Heidelberg: Carl Winter, 1886.)

THIS is an attempt, and a very successful one, to present to the student an elementary treatise, which shall be at once brief but well up to date; a difficult task in the case of a subject of which our stock of knowledge is being continually increased by results scattered through, or buried in, countless separate memoirs. The work is without figures, and is compressed into 316 pages, the first 57 of which are given to a general and introductory discussion of the characters of rocks and the methods of investigation. The reader's sound knowledge of the principles of chemistry, mineralogy, and physical optics is assumed by the author. The classification used in the larger treatises is generally adhered to. The arrangement of the information relative to each rock-family is very neat and compact: first is given a list of chemical analyses, and next a description of the macroscopical and microscopical characters of the component minerals; then follow accounts of the modes of occurrence, alteration, and genesis; and finally a short description of the varieties. The work is altogether satisfactory.

Notions Générales sur l'Éclairage Électrique. Par Henry Vivarez. (Paris: J. Michelet, 1886.)

THIS is a second edition of one of those readable and well-illustrated *brochures* that the French know so well how to write, and that have such a ready sale in their country, but which fail to secure even a publisher in this. The author is known in this country principally as a contributor to *Engineering*. His name has not been associated with any electric light enterprise, but he clearly understands that which he writes about. There is not much in the book that is new, indeed there is much that is obsolete, but what there is is clear and comprehensive. That which is French has naturally a preference over that which comes from "barbarians." The chapter on meters and photometers is excellent. The following table is useful:—

One carcel	=	8·3	English standard candles.
	=	7·5	German " " "
	=	6·5	Munich " " "
	=	105	litres per hour of gas

The work is not scientific. It is popular, readable, and useful.

Rome in Winter and the Tuscan Hills in Summer; a Contribution to the Climate of Italy. By David Young, M.D. (London: Lewis, 1885.)

THIS little volume must prove of practical value to a considerable class of people, that class which every year furnishes a large contingent of visitors to Italy and winter residents in Rome. Dr. Young has himself long resided in Italy, and has had ample opportunity of observing its climatal and sanitary conditions. He shows in his instructive book that Rome has got an undeservedly bad name for its climate, and the object of the volume is to show exactly what that climate is, under such heads as —the climate of Rome and its effects upon health and disease; the unhealthiness of Rome; Roman fever and malaria; water-supply of Rome; how to live in Rome; class of invalids likely to derive benefit from a residence in Rome, and so on.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

Barometric Pressure in the Tropics

THE American Eclipse Expedition to the Caroline Islands in May 1883 also made exceedingly interesting meteorological observations, of which the most important are those on the pressure of the air, as they elucidate some points in the daily period of this phenomenon (*Memoirs* of the National Academy of Sciences, vol. ii.). As this is very regular in the tropics, any difference in it points to exceedingly potent influences, and it is easy to surmise that, in the daytime, *none, except a cyclone, can be more potent than an eclipse, as no other can shade the whole extent of the atmosphere.* The result was an accelerated diminution of pressure from 10.15 to 11.30 a.m. (totality 11.32 to 11.37 a.m.), then a rise to about noon—*i.e.* at a time when there is generally a great fall—and later again an accelerated fall. The explanation is probably the following:—The accelerated fall at the beginning is caused by the diminished temperature and elasticity of the air. Then, as the height of equal pressure diminished in the shaded area, air began to flow in from the vicinity, causing a rise of pressure, and the subsequent rapid fall was a return to the normal condition.

The next total eclipse is to be on August 29 next, being visible in the morning on the Isthmus of Panama, the Leeward Islands, then Tobago, Grenada, the Grenadine Islands, and Barbados, and in the afternoon in South Africa from Benguela to Mozambique and the southern part of Madagascar. It would accordingly be important to have half-hourly barometrical observations (self-recording barometers or aneroids would be better still) at many points both of America and the adjacent islands and of Africa. We should expect to see the morning rise of pressure interrupted on the Antilles Islands (totality 7.23 a.m. at Barbados), and the afternoon fall of pressure also interrupted in Africa (totality 3.10 p.m. at Benguela).

The varying cloudiness in America and the Antilles (as the rainy season there has not the steadiness of the Indian monsoon and does not exclude clear days) would add a feature of even greater interest, as the influence of the eclipse on the daily period of pressure in clear and cloudy days could be compared. In South Africa, except the coast, where fogs are frequent at

this season, clear weather prevails, and thus there is much more hope of good observations of the eclipse. As to pressure observations, they would be most interesting at some distance from the coast. A. WOEIKOF

St. Petersburg, January 24/February 5

Parallel Roads

THE following, from an old note-book, may be of interest in connection with this subject :—

I observed, in 1881, the formation of parallel roads on a small scale still in progress in a small plain about 3 miles long and 1 broad, marked in maps of Iceland as a lake, Sandklettavatn (lat. 64° 21′). This was surrounded on three sides by mountains, and the fourth was closed by a lava-stream. The plain is a perfect level of dark sandy mud without a vestige of vegetation, and is evidently a shallow lake for the greater part of the year. The shore is regularly terraced, the terraces being 2 or 3 feet apart. I thought at the time that the water must be dammed back regularly during the winter to a certain height, but that this height has diminished at three successive periods owing to fresh channels being found through the lava at lower elevations. In Goddalir there is a most instructive example of the formation of river-terraces. Above the broad valley there are two groups, over 1000 feet deep, terminating in a vast glacier or ice-cap. These seem to have been filled in solid with moraine, the remains of which still cling to the sides at all elevations. The eastern one evidently became cleared out first, with the result that an enormous mass of gravel was spread over the whole width of the valley below. The western one next started a torrent of its own, which cut down the level for some distance on its own side to 30 or 40 feet lower. Finally, both torrents united, and their greater transporting power again cut down the level some 30 feet, with the result that there are now two level terraces and the basis of a third. J. STARKIE GARDNER

Colours in Clouds

THE coloured fringes to, and in, clouds I long ago found to be very common, but I had no idea that there was any novelty, as there would seem to be, in this fact.

When the sun is setting behind a bank of clouds and there are high cumulo-strati or strati, these will almost always, I believe, be found coloured, at the proper distance from the sun, if viewed through a suitable dark glass. The edges of the dark cloud will often be so too. I believe these colours are always present ; hidden by the brightness of the cloud which shows them, and the glare of the lower air. The former is removed by the dark glass, the latter by the interposition of the bank.

The tint I believe depends on the density of the cloud where it is formed. But it seems more probable that the real cause is that the particles (of ice?) are larger and more numerous where the cloud is more dense, and that, if their size were increased independently of the density we should have exceptional cases.

I have seen these fringes to bright edges of dense cumulus, but I must own that I never was quite satisfied that I was not seeing two strata of cloud. The colours are very beautiful, and often so strong that it is difficult to realise that the dark glass has only removed a concealing glare. J. F. TENNANT

Ealing, January 29

Movement of Telegraph-Wires

I HAVE frequently noticed the peculiar movement of telegraph-wires noticed by your correspondent. For some time I took it to be an ordinary case of vibration, but it presented so many peculiar features that I was induced to examine it more closely. It frequently happens that when the temperature and dew-point of the air are at or about the freezing-point, and the sky is clear, the wires are chilled by radiation, and hoar-frost is deposited upon them. With an almost imperceptible wind the hoar-frost collects almost wholly upon one side of the wire in the form of a wing, producing a torsional strain. The weight of the hoar-frost, as compared with the weight of line, is so small that their common centre of gravity is almost coincident with the centre of the wire. When in this condition, if a light wind acts upon the frozen wing, it imparts a reciprocating rotary motion to the wire. Each time the vibration brings the plane of the protuberance in a line with the eye, the wire almost disappears from sight, while when it is at right angles to that line it flashes suddenly into view. If looked at from such a point that the wing of hoar-frost moves backwards and forwards behind the black wire, the effect is very much more marked.

R. MOUNTFORD DEELEY

Mill Hill, Derby, February 2

The Deltas of Glacial Rivers

AN interesting fact connected with the Lake of Geneva has recently been brought to light by M. Hörnlimann, who is now preparing a hydrographical chart of the Leman basin. From the point where the Rhone enters the lake, to a distance of more than 6 kilometres, the river-water, which is denser than the lake-water, follows a trench in the alluvial deposits which is from 500 to 800 metres wide, and which, even beyond St. Gingolph, where the depth exceeds 200 metres, is 10 metres deep. A precisely similar groove has been observed at the mouth of the Rhine in the Lake of Constance, with a depth of 70 metres and a width of 600 metres ; and similar though less deep grooves are found opposite to the old mouths of the Rhone and the Rhine in the two lakes. The greater density of the river-water is owing to its lower temperature and to the vast quantity of sediment suspended in it. The deltas of glacial rivers flowing into lakes differ, then, in a remarkable manner from the deltas of most rivers flowing into the sea ; the water of these rivers, being less dense than that of the sea, spreads over the surface, and thus helps to form bars. G. H. W.

MAHWA FLOWERS

ATTENTION has been publicly drawn of late to "Mahwa Flowers"—the corollas of *Bassia latifolia*—as a cheap source of cane-sugar. This species of Bassia is a tree attaining to a height of 40 to 60 feet, and common in many parts of India, especially in Central Hindustan. It has oblong leaves of firm texture, from 5 to 6 inches long ; these fall in February, March, or April, and are succeeded in March or April by the flowers. These last for two or three weeks and then begin to fall. The falls take place at night, and continue sometimes for a fortnight. The fruits, which resemble a small apple, ripen in three months ; the seeds, one to four in number, yield an edible oil by pressure. It should be added that the trees are self-sown, and that they flourish in very poor and stony soil.

When the Mahwa tree is in bud, the ground beneath it is cleared of weeds, sometimes by burning. A single tree may yield as much as six to eight maunds[1] of flowers ; even thirty maunds have been asserted to have been collected from one tree. These flowers have a luscious but peculiar taste when fresh ; when dry they resemble in flavour inferior figs. They form a very important addition to the food of the poorer classes in those districts where the tree abounds, particularly in the neighbourhood of woodlands and jungles. They are specially useful in economising cereals in seasons of famine and drought. They are sometimes eaten fresh, but more commonly sun-dried, and are usually consumed with rice and the lesser millets, or with seeds of various kinds, and leaves. It is said that a man, his wife, and three children may be supported for one month on two maunds of Mahwa flowers.[2]

It is not, however, as a direct article of food, nor as a material for the preparation of a rough spirit by fermentation (a very common use of these flowers) that Mahwa blossoms are now recommended. It has been affirmed that they may be employed as an abundant and very cheap source of cane-sugar. In the *Morning Post* of October 15, 1885, appeared an article on this subject, in which it was stated that, "If the Mahwa flowers be available in sufficient quantities for the sugar-makers of Europe, there can be no question that the days of the

[1] A Bengal maund equals 82¾ lbs. avoirdupois.

[2] For an interesting account of the Mahwa tree and its products, see a paper by E. Lockwood in the *Journal* of the Linnean Society ("Botany"), vol. xvii. pp. 87-90.